ATTACHMENT J1

Columbus AFB Electric Distribution System

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J1 Columbus AFB Electric Distribution System

J1.1 Columbus AFB Overview

J1.1.1 Description

Columbus Air Force Base is located in the Black Plains area in northeast Mississippi, approximately nine miles north of downtown Columbus, Mississippi. The City of Columbus is approximately ten miles from the Alabama state line on U.S. Highways 45 and 82 in an essentially rural setting. The almost unrestricted air space surrounding Columbus AFB is almost as valuable to the Air Force as the land itself and is particularly desirable for the student pilot training in the associated aircraft military operating areas.

J1.1.2 Installation Profile

Columbus AFB has three on-base runways and one runway at the auxiliary field at Shuqualak. The base is located on 4,903 acres including easements and right-of-way for runway approach and the drainage ways off-base. Over 218 assigned aircraft and 14 cockpit simulators are used for training the Undergraduate Pilots.

Columbus AFB was established through the efforts of local citizens in an attempt to secure defense industries as well as support the national response to world geopolitical activity. On June 26, 1941, the War Department approved an Army Air Field for the Columbus, MS area. The Department of Agriculture transferred 750 acres to the Army in August 1941 and the federal government leased 3,579 acres from the City of Columbus and Lowndes County, MS. The original mission of the installation was to serve as a twin engine advanced flying school. The onset of WW II expedited activity at the base with the first training beginning on February 9, 1942. Initially named for a local WW I war hero, the installation name was changed to Columbus Army Flying School in April 1942. Over 7000 pilots were trained at the school during WW II.

The installation was deactivated for approximately five years until world events again required a U.S. military build up. In March 1951 the base, renamed Columbus Air Force Base, was reopened. It provided both primary and basic flight training under the supervision of the USAF Air Training Command. In April 1955 the base became part of the Strategic Air Command (SAC) Second Air Force and the 4228th Air Base Squadron was organized. As part of SAC's base dispersal program new and modernized facilities were added to the installation inventory. The leased property was purchased by the federal government in September 1956. In December 1957, Columbus AFB was designated the home base for a B-52 squadron and a KC-135 jet refueling squadron. The first KC-135 of the 901st Air Refueling Squadron arrived on January 7, 1959 and the first B-52 landed on May 28, 1959.

Columbus AFB was returned to the Air Training Command on July 1, 1969 and resumed the mission of training pilots under the command of the 3650th Pilot Training Wing. The current host unit, the 14th Flying Training Wing was activated at the base on June 1, 1972.

As of 1998, there were 901 active duty personnel and 626 military dependents living on base, with 497 active duty and 471 military dependents living off base. There were 1,318 civilian employees. Military retirees in the area number 3,444. There are 171 facilities on the installation and currently 577 military family housing units. 232 military family housing units were recently demolished and are currently being replaced with 120 new duplex single and two story units, funded and under construction. 100 more military family housing units are scheduled for construction as funding is authorized.

J1.1.3 Mission

The mission statement of the 14th Flying Training Wing is: "To defend the United States of America by training the world's best pilots and warriors". The wing vision is to maintain the world's premier pilot training environment. The Wing Goals are to provide gaining commands top-quality pilots and combat-ready warriors, enhance quality of life, protect and improve equipment and facilities, and embrace the "BLAZE" values of building leaders, advancing integrity, service before self, and excellence in all they do.

The Columbus AFB Specialized Undergraduate Pilot Training (SUPT) syllabus includes a 52-week intensive training program to earn the prestigious silver wings. Students learn visual flight rules, instrument navigation and formation flying through classroom training, full motion and visual system flight simulators and the use of operational trainer aircraft, such as the T-37 "Tweet," the T-38 "Talon," and the T-1 "Jayhawk." Some graduates continue training in the AT-38B aircraft, learning Introduction to Fighter Fundamentals.

Columbus AFB expects to receive the Joint Primary Aircraft Training System aircraft-the T-6A Texan II. The T-6A will replace the Air Force's T-37 and Navy's T-34 as the joint primary trainer. The new aircraft will be used to train entry-level aviation students into one of four training tracks: the Air Force's bomber/fighter track; the Air Force's airlift/tanker or Navy's maritime track; the Navy's strike track; or the Air Force helicopter track.

J1.2 Electric Distribution System Description

J1.2.1 Electrical System Fixed Equipment Inventory

The Columbus AFB electric distribution system consists of all appurtenances physically connected to the distribution system from the point in which the distribution system enters the Installation and Government ownership currently starts to the point of demarcation, defined by the Right of Way. The system may include, but is not limited to, transformers, circuits, protective devices, utility poles, ductbanks, switches, street lighting fixtures, and other ancillary fixed equipment. The actual inventory of items

sold will be in the bill of sale at the time the system is transferred. The following description and inventory is included to provide the Contractor with a general understanding of the size and configuration of the distribution system. The Government makes no representation that the inventory is accurate. The Contractor shall base its proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree the following description and inventory. Under no circumstances shall the Contractor be entitled to any service charge adjustments based on the accuracy of the following description and inventory.

Specifically excluded from the electric distribution system privatization are:

- Airfield lighting, airfield lighting vaults, and all associated equipment to include ball field-type ramp lighting
- Bldg 1810 Munitions Storage Area
- Bldg 1944 SAC Alert Area.
- Parking lot lights, street lights, and security lights that are fed off the building internal.
- Ball field, track, and pedestrian pathway lighting
- Water tower beacon lights.
- Electrical distribution system within MFH areas.

J1.2.1.1 Description

Columbus AFB is a direct-served industrial customer, and purchases electricity from the Tennessee Valley Authority (TVA). The power is delivered through a TVA owned electrical substation on the south side of the base. Power enters the TVA substation by either of two 46 kV lines, the Columbus Feed or the West Point Feed. The West Point Feed is an unencumbered direct radial primary from TVA's West Point MS District Substation serving Northeast MS. The Columbus Feed is an auxiliary primary coming from the City of Columbus's Bent Tree Substation. TVA steps the voltage down to the 13.2 kV distribution level inside the Columbus AFB substation. There is also a TVA-owned three-phase mechanical wiper type voltage regulator located in the substation.

The six feeder circuit breakers in the substation are owned and maintained by TVA. Five of these circuit breakers supply power to the five government owned distribution feeders at Columbus AFB. The sixth circuit breaker supplies power to 4-County Electric Power Association.

Three of the five government owned feeders are operated as radial feeders with predominantly overhead construction using wood poles. These feeders are identified as Circuit A, Circuit B, and Circuit C. These three feeders supply the majority of the base loads. The typical backbone phase conductors used for these feeders are 336 ACSR aluminum. The majority of the branch circuits off the backbone are either #2 aluminum or 1/0 ACSR conductors.

One of the government owned feeders serves family housing at Columbus AFB. This feeder is identified as Housing feeder, and is almost entirely underground except for

short overhead sections of 336 ACSR aluminum near the TVA substation. The three-phase underground sections on this feeder typically utilize 4/0 copper XLP cables. The single-phase underground sections on this feeder typically utilize #1 copper XLP cables. The Housing feeder has been excluded from utility privatization.

The remaining government owned feeder is the dedicated feeder to the Flight Simulator Building. This is an underground feeder using 4/0 copper XLP cables.

TVA meters incoming power at their substation. Columbus AFB presently has approximately 70 additional meters at other locations. The meters are maintained and read by base personnel. The reimbursable customers are billed according to monthly consumption plus an O & M fee calculated by the Base Utility Engineer.

Columbus AFB has an electric service contract with Monroe County EPA to furnish power within the base perimeter to the North Runway ILS lighting station. The contract also includes service power to a single pole mounted nighttime area light at the Monroe County meter station just outside the base perimeter and adjacent to the North Runway ILS.

Housing privatization is scheduled to occur at Columbus AFB in FY 04. Electrical distribution within the MFH areas is excluded from utility privatization. It will become the property of the housing privatization contractor.

J1.2.1.2 Inventory

Table 1 provides a general listing of the major electrical system fixed assets for the Columbus AFB electrical distribution system included in the sale.

TABLE 1
Fixed Inventory
Electrical Distribution System Columbus AFB

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
Primary Overhead Circuits					
3ph, 4w, 15kV Conductor	336 kcmil	71,808	SCLF	AL	1956
3ph, 4w, 15kV Conductor	336 kcmil	165,264	SCLF	AL	1959
3ph, 4w, 15kV Conductor	1/0	23,232	SCLF	AL	1961
3ph, 4w, 15kV Conductor	1/0	4,752	SCLF	AL	1962
3ph, 4w, 15kV Conductor	1/0	3,168	SCLF	AL	1969
3ph, 4w, 15kV Conductor	1/0	4,752	SCLF	AL	1970
3ph, 4w, 15kV Conductor	1/0	3,168	SCLF	AL	1971
3ph, 4w, 15kV Conductor	1/0	11,088	SCLF	AL	1972
3ph, 4w, 15kV Conductor	1/0	4,752	SCLF	AL	1976
3ph, 4w, 15kV Conductor	1/0	5,280	SCLF	AL	1980
3ph, 4w, 15kV Conductor	1/0	1,056	SCLF	AL	1985
3ph, 4w, 15kV Conductor	1/0	1,584	SCLF	AL	1986

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
3ph, 4w, 15kV Conductor	1/0	3,168	SCLF	AL	1987
3ph, 4w, 15kV Conductor	1/0	528	SCLF	AL	1989
3ph, 4w, 15kV Conductor	1/0	6,336	SCLF	AL	1990
3ph, 4w, 15kV Conductor	1/0	2,112	SCLF	AL	1992
3ph, 4w, 15kV Conductor	1/0	44,000	SCLF	AL	1995
Primary Underground Circuits					
3ph, 4w, 15kV, In Conduit	# 2	250	SCLF	CU	1959
3ph, 4w, 15kV, In Conduit	# 1	200	SCLF	CU	1962
3ph, 4w, 15kV, In Conduit	# 1	110	SCLF	CU	1968
3ph, 4w, 15kV, In Conduit	# 2	9270	SCLF	CU	1969
3ph, 4w, 15kV, In Conduit	# 2	300	SCLF	CU	1970
3ph, 4w, 15kV, In Conduit	# 2	320	SCLF	CU	1972
3ph, 4w, 15kV, In Conduit	# 2	500	SCLF	CU	1985
3ph, 4w, 15kV, In Conduit	# 1	240	SCLF	CU	1986
3ph, 4w, 15kV, In Conduit	# 2	288	SCLF	CU	1988
3ph, 4w, 15kV, In Conduit	# 1	120	SCLF	CU	1989
3ph, 4w, 15kV, In Conduit	# 1	380	SCLF	CU	1990
3ph, 4w, 15kV, In Conduit	# 1	170	SCLF	CU	1991
3ph, 4w, 15kV, In Conduit	# 1	180	SCLF	CU	1995
3ph, 4w, 15kV, In Conduit	1/0	100	SCLF	CU	1990
3ph, 4w, 15kV, In Conduit	1/0	490	SCLF	CU	1992
3ph, 4w, 15kV, In Conduit	4/0	200	SCLF	CU	1983
3ph, 4w, 15kV, In Conduit	4/0	60	SCLF	CU	1995
Shielded Cable, 1w, 15kV In Conduit	1/0	400	SCLF	CU	1959
Wire, neutral	1/0	400	SCLF	CU	1959
Shielded Cable, 1w, 15kV In Conduit	1/0	1,340	SCLF	CU	1985
Wire, neutral	1/0	1,340	SCLF	CU	1985
Shielded Cable, 1w, 15kV In Conduit	1/0	48	SCLF	CU	1986
Wire, neutral	1/0	48	SCLF	CU	1986
Shielded Cable, 1w, 15kV In Conduit	1/0	250	SCLF	CU	1993
Wire, neutral	1/0	250	SCLF	CU	1993
Secondary Underground Circuits					
1ph, 3w, In Conduit	4/0	18,525	SCLF	CU	1970
1ph, 3w, In Conduit	4/0	22,238	SCLF	CU	1995
Conduit					
	4”	650	LF	PVC	1959
	4”	200	LF	PVC	1962
	4”	110	LF	PVC	1968
	4”	9,270	LF	PVC	1969
	4”	25,000	LF	PVC	1970

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
	4”	320	LF	PVC	1972
	4”	200	LF	PVC	1983
	4”	1,840	LF	PVC	1985
	4”	300	LF	PVC	1986
	4”	288	LF	PVC	1988
	4”	120	LF	PVC	1989
	4”	480	LF	PVC	1990
	4”	170	LF	PVC	1991
	4”	490	LF	PVC	1992
	4”	250	LF	PVC	1993
	4”	75,607	LF	PVC	1995
Electric Utility Poles					
Electric Utility Pole	40 ‘[2]	48	EA	Wood	1956
Electric Utility Pole	40 ‘[2]	243	EA	Wood	1959
Electric Utility Pole	40 ‘[2]	32	EA	Wood	1961
Electric Utility Pole	40 ‘[2]	38	EA	Wood	1971
Electric Utility Pole	40 ‘[2]	3	EA	Wood	1976
Electric Utility Pole	40 ‘[2]	476	EA	Wood	1984
Electric Utility Pole	40 ‘[2]	1	EA	Wood	1991
Electric Utility Pole	40 ‘[2]	6	EA	Wood	1995
Instrumentation Transformers					
Current Transformers	15 kV	6	EA		2000
Potential Transformers	15 kV	6	EA		2000
Protective Devices					
Fuses	< 200 Amp	11	EA		1959
Fuses	< 200 Amp	9	EA		1961
Fuses	< 200 Amp	29	EA		1971
Fuses	< 200 Amp	6	EA		1984
Fuses	< 200 Amp	8	EA		1991
Fuses	< 200 Amp	7	EA		1995
Recloser	15KV	2	EA		1987
Capacitors					
Capacitors	1.2 MVAR	1	EA		1991
Capacitors	.6 MVAR	1	EA		1995
Capacitors	.6 MVAR	1	EA		2001
Capacitors	.3 MVAR	1	EA		2001
Light Poles					
Light pole	20 ft	356	EA	AL	1979
Elevated Street Lights					
High Pressure Sodium	400 watt	593	EA		1983
High Pressure Sodium	200 watt	592	EA		1983

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
Manholes					
Manholes	6'X10'X7'	1	EA		1959
Manholes	6'X10'X7'	31	EA		1971
Manholes	6'X10'X7'	5	EA		1984
Manholes	6'X10'X7'	4	EA		1991
Manholes	6'X10'X7'	18	EA		1995
Switchgear					
Disconnect switch, gang operated,	15kV	2	EA		1956
Disconnect switch, gang operated,	15kV	6	EA		1959
Disconnect switch, gang operated,	15kV	1	EA		1995
Swgear, ld int sw, 600 amp, 2 posn, NEMA 3R Line-Up	600 AMP	1	EA		1971
Swgear, ld int sw, 600 amp, 2 posn, NEMA 3R Line-Up	600 AMP	2	EA		1984
Swgear, ld int sw, 600 amp, 2 posn, NEMA 3R Line-Up	600 AMP	1	EA		1987
Swgear, ld int sw, 600 amp, 2 posn, NEMA 3R Line-Up	600 AMP	1	EA		1991
Swgear, ld int sw, 600 amp, 2 posn, NEMA 3R Line-Up	600 AMP	8	EA		1991
Electric Meters					
1ph & 3ph 120 - 480 V		69	EA		1985
Transformers, Single Phase					
Transformers, Single phase	5 kVA	14	EA	Pole Mt.	1959
Transformers, Single phase	10 kVA	1	EA	Pole Mt.	1961
Transformers, Single phase	10 kVA	1	EA	Pole Mt.	1971
Transformers, Single phase	10 kVA	1	EA	Pole Mt.	1976
Transformers, Single phase	10 kVA	3	EA	Pole Mt.	1995
Transformers, Single phase	15 kVA	1	EA	Pole Mt.	1956
Transformers, Single phase	15 kVA	6	EA	Pole Mt.	1959
Transformers, Single phase	15 kVA	4	EA	Pole Mt.	1961
Transformers, Single phase	15 kVA	4	EA	Pole Mt.	1971
Transformers, Single phase	15 kVA	9	EA	Pole Mt.	1976
Transformers, Single phase	15 kVA	3	EA	Pole Mt.	1991
Transformers, Single phase	25 kVA	3	EA	Pole Mt.	1956
Transformers, Single phase	25 kVA	17	EA	Pole Mt.	1959
Transformers, Single phase	25 kVA	11	EA	Pole Mt.	1961
Transformers, Single phase	25 kVA	7	EA	Pole Mt.	1971
Transformers, Single phase	25 kVA	3	EA	Pole Mt.	1987
Transformers, Single phase	25 kVA	3	EA	Pole Mt.	1991
Transformers, Single phase	25 kVA	1	EA	Pad Mt.	1984
Transformers, Single phase	25 kVA	1	EA	Pad Mt.	1987
Transformers, Single phase	37.5 kVA	1	EA	Pole Mt.	1956
Transformers, Single phase	37.5 kVA	11	EA	Pole Mt.	1959
Transformers, Single phase	37.5 kVA	3	EA	Pole Mt.	1961

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
Transformers, Single phase	37.5 kVA	3	EA	Pole Mt.	1971
Transformers, Single phase	37.5 kVA	1	EA	Pole Mt.	1976
Transformers, Single phase	37.5 kVA	3	EA	Pole Mt.	1984
Transformers, Single phase	37.5 kVA	3	EA	Pole Mt.	1991
Transformers, Single phase	37.5 kVA	1	EA	Pad Mt.	1959
Transformers, Single phase	37.5 kVA	1	EA	Pad Mt.	1971
Transformers, Single phase	37.5 kVA	1	EA	Pad Mt.	1991
Transformers, Single phase	50 kVA	1	EA	Pole Mt.	1956
Transformers, Single phase	50 kVA	19	EA	Pole Mt.	1959
Transformers, Single phase	50 kVA	7	EA	Pole Mt.	1961
Transformers, Single phase	50 kVA	3	EA	Pole Mt.	1971
Transformers, Single phase	50 kVA	3	EA	Pole Mt.	1984
Transformers, Single phase	50 kVA	3	EA	Pole Mt.	1987
Transformers, Single phase	50 kVA	1	EA	Pole Mt.	1995
Transformers, Single phase	50 kVA	1	EA	Pad Mt.	1987
Transformers, Single phase	75 kVA	1	EA	Pole Mt.	1959
Transformers, Single phase	75 kVA	6	EA	Pole Mt.	1961
Transformers, Single phase	75 kVA	5	EA	Pole Mt.	1971
Transformers, Single phase	75 kVA	4	EA	Pole Mt.	1984
Transformers, Single phase	75 kVA	1	EA	Pad Mt.	1971
Transformers, Single phase	75 kVA	1	EA	Pad Mt.	1987
Transformers, Single phase	100 kVA	3	EA	Pole Mt.	1956
Transformers, Single phase	100 kVA	1	EA	Pole Mt.	1959
Transformers, Single phase	100 kVA	2	EA	Pad Mt.	1971
Transformers, Three Phase					
Transformers, Three phase	45 kVA	1	EA	Pad Mt.	1971
Transformers, Three phase	45 kVA	1	EA	Pad Mt.	1987
Transformers, Three phase	75 kVA	1	EA	Pad Mt.	1991
Transformers, Three phase	75 kVA	1	EA	Pad Mt.	1968
Transformers, Three phase	75 kVA	1	EA	Pad Mt.	1972
Transformers, Three phase	75 kVA	1	EA	Pad Mt.	1999
Transformers, Three phase	112.5 kVA	1	EA	Pad Mt.	1959
Transformers, Three phase	112.5 kVA	1	EA	Pad Mt.	1987
Transformers, Three phase	112.5 kVA	3	EA	Pad Mt.	1991
Transformers, Three phase	112.5 kVA	1	EA	Pad Mt.	1995
Transformers, Three phase	150 kVA	2	EA	Pad Mt.	1971
Transformers, Three phase	150 kVA	1	EA	Pad Mt.	1991
Transformers, Three phase	225 kVA	1	EA	Pad Mt.	1959
Transformers, Three phase	225 kVA	3	EA	Pad Mt.	1961
Transformers, Three phase	225 kVA	3	EA	Pad Mt.	1971
Transformers, Three phase	225 kVA	1	EA	Pad Mt.	1984
Transformers, Three phase	225 kVA	1	EA	Pad Mt.	1991
Transformers, Three phase	225 kVA	1	EA	Pad Mt.	1995
Transformers, Three phase	225 kVA	1	EA	Pad Mt.	2002
Transformers, Three phase	300 kVA	2	EA	Pad Mt.	1959
Transformers, Three phase	300 kVA	3	EA	Pad Mt.	1961
Transformers, Three phase	300 kVA	10	EA	Pad Mt.	1971
Transformers, Three phase	300 kVA	3	EA	Pad Mt.	1995

Component Description	Size	Quantity	Unit of Measure	Material Type[1]	Approximate Year Installed
Transformers, Three phase	300 kVA	1	EA	Pad Mt.	2001
Transformers, Three phase	500 kVA	1	EA	Pad Mt.	1959
Transformers, Three phase	500 kVA	2	EA	Pad Mt.	1971
Transformers, Three phase	500 kVA	1	EA	Pad Mt.	1984
Transformers, Three phase	500 kVA	1	EA	Pad Mt.	1987
Transformers, Three phase	500 kVA	2	EA	Pad Mt.	1991
Transformers, Three phase	500 kVA	2	EA	Pad Mt.	1995
Transformers, Three phase	500 kVA	1	EA	Pad Mt.	2001
Transformers, Three phase	750 kVA	1	EA	Pad Mt.	1971
Transformers, Three phase	750 kVA	1	EA	Pad Mt.	1976
Transformers, Three phase	750 kVA	6	EA	Pad Mt.	1984
Transformers, Three phase	750 kVA	1	EA	Pad Mt.	1991
Transformers, Three phase	750 kVA	1	EA	Pad Mt.	1995
Transformers, Three phase	1000 kVA	1	EA	Pad Mt.	1991
Transformers, Three phase	1000 kVA	1	EA	Pad Mt.	1995
Transformers, Three phase	1000 kVA	1	EA	Pad Mt.	2003
Transformers, Three phase	1500 kVA	1	EA	Pad Mt.	1984
Transformers, Three phase	1500 kVA	1	EA	Pad Mt.	2002

Legend:
AWG - American Wire Gauge CU - Copper
kVA - Kilovolt Amperes kV = kilovolt
EA = Each LF = Linear Feet
ph = phase w =watt posn = position
MVAR = Megavolt-ampere reactive
EA=each Mt = Mounted
Swgear = switchgear AL = aluminum
SCLF = Single Conductor Linear Feet

Notes:
1. Drawings furnished by Columbus AFB do not indicate material types. Material types have been assumed and may not necessarily reflect the actual material in place
2. Actual lengths vary between 30 and 45 feet

NEMA = National Electrical Manufacturers Association
ld int sw = load disconnect interrupt switch

J1.2.2 Electrical System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment, vehicles, and tools.

TABLE 2
Spare Parts
Electrical Distribution System Columbus AFB

Qty	Item	Make/Model	Description	Remarks
6 ea.	Transformer	Bowman/Bowman	50 KVA	7620/13200Y 120/240
1 ea.	Transformer	McGraw-Edison	50 KVA	7200/1247Y 120/240
5 ea.	Transformer	Bowman/Bowman	25 KVA	7620/13200Y 120/240
2 ea.	Transformer	White Transformer Sale	75 KVA	7620/13200Y 120/240
1 ea.	Transformer	Cooper	10 KVA	4160/2400 240/120
3 ea.	Transformer	Howard Industries	75 KVA	7620/13200 120/240
1 ea.	Transformer	Bowman/Bowman	75 KVA	13200 GRD Y 120/240

Qty	Item	Make/Model	Description	Remarks
2 ea.	Transformer	Cooper	75 KVA	7620/13200 120/240
1 ea.	Transformer	Mid Central Electric	0.5 KVA	7960 .20 Fixed Load Trans.
1 ea.	Transformer	Eastern	0.5 KVA	13200/7620 120
3 ea.	Transformer	Bowman/Bowman	15 KVA	7620/13200Y 120/240
3 ea.	Transformer	Allis-Chalmers	50 KVA	7620/12470Y 120/240
1 ea.	Transformer	Allis-Chalmers	50 KVA	12470Y 120/240
1 ea.	Transformer	Bowman/Bowman	37.5 KVA	12470/21600 120/240
1 ea.	Transformer	Vantran	37.5 KVA	13200 240/120
1 ea.	Transformer	Vantran	75 KVA	13200 GRD Y 240/120
1 ea.	Oil Switch	ABB Power Type CSD	15KV	200 amps 120 volts
1 ea.	Oil Switch	Trinetics Type CSD	15KV	200 amps 125 volts
3 ea.	Capacitor	Cooper	0.2 MVAR	7620V
1 ea.	Air Switch		3 Phase	
8 ea.	Utility Pole		40 Foot	Class 4
7 ea.	Utility Pole		45 Foot	Class 3
3 ea.	Utility Pole		35 Foot	Class 5
1 ea	Utility Pole		50 Foot	Class 3
5000 LF	Cable	Okonite	#2 EP, 133% INS. LVL., MV-105	On partial spools

TABLE 3
Specialized Vehicles and Tools
Electrical Distribution System Columbus AFB

Description	Quantity	Location	Maker
NONE			

J1.2.3 Electric System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

TABLE 4
Manuals and Records
Electrical Distribution System Columbus AFB

Qty	Item	Description	Remarks
1	CD	UTILITY SYSTEM DRAWINGS	ELECTRICAL DIST SYS
1	RECORD DRAWINGS	COPIES OF ALL RECORD DRAWINGS WILL BE MADE AVAILABLE ONSITE TO CONTRACTOR AS REQUESTED	DRAWINGS WILL BE MADE AVAILABLE DURING NORMAL DUTY HOURS
1	MANUALS/TESTS	COPIES OF ALL MANUALS/TESTS WILL BE MADE AVAILABLE ONSITE TO CONTRACTOR AS REQUESTED	

J1.3 Specific Service Requirements

The service requirements for the Columbus AFB electrical distribution system are as defined in the Section C, *Description/Specifications/Work Statement*. The following requirements are specific to the Columbus AFB electrical distribution system and are in addition to those found in Section C. If there is a conflict between standards described below and Section C, the standards listed below take precedence over those found in Section C.

1. As to digging permits, the Contractor will be required to mark his own utilities and will be responsible for initiating, officiating, and tracking digging permits for his own utilities. IAW Mississippi Code of 1972 Section 77-13-5 and -11, the Contractor will provide not less than five (5) and not more that ten (10) working days notice of any needed excavations to Mississippi One Call System and to said Utilities Privatization Administrative Contracting Officer so the location of underground utilities may be located and marked by the applicable utility owner.

2. The Flight Simulator Building 268 has unique electrical requirements. It is probably the most critical building on the base regarding power stability and voltage fluctuations. With the present equipment, even the momentary operations on another substation feeder are likely to disrupt operation of the simulators. While new simulators being installed in FY 06 may have partial UPS protection, the equipment will remain susceptible to power fluctuations. There are certain critical limiting switching time restrictions based on main 46 KV power switching or 13 KV breaker switching in the TVA substation as imposed be the sensitivity of equipment in the Flight Simulator Building; switching schedule must be closely coordinated between TVA and base needs. Critical power requirements will continue through at least 2007.

J1.4 Current Service Arrangement

All equipment in the substation that supplies power to Columbus AFB is owned by TVA. There are six single phase transformers installed in the substation, connected in two delta-grounded wye transformer banks. These two transformer banks are operated in parallel to supply one 13.2 kV bus in the substation. The single phase transformers are each rated 5.0 MVA. Therefore, the total nominal transformer capacity is 30.0 MVA.

There is a three-phase voltage regulator installed in the TVA substation. The nameplate self-cooled and fan-cooled ratings of this regulator are 30.0 MVA and 40.0 MVA respectively.

It was noted that there is one feeder breaker at the TVA substation that serves 4-County Electric Power Association. However, the load on this feeder appears to be fairly small and should not impact the ability of the TVA substation to serve the future load at Columbus AFB.

The typical backbone phase conductors used for the overhead distribution lines at Columbus AFB is 336 ACSR aluminum. The approximate rating of the 336 ACSR conductor is 530 amperes. This rating is well above both the existing and the future expected loads on the feeders.

There is a section of underground 4/0 copper XLP cable in the backbone of the Circuit C feeder near the TVA substation. The approximate 265 ampere rating of this cable is less than the rating of the 336 ACSR overhead conductors and could impose a load limitation on the feeder. However, this has not been identified as a deficiency since the existing load on Circuit C is approximately 90 amperes, and there has been no major additional load identified for the feeder.

The dedicated feeder to the flight simulator building is all underground with 4/0 copper XLP cables. The approximate 265 ampere rating of this cable has adequate capacity to supply the existing feeder load, which is less than 100 amperes.

TVA is constructing a first-of-its-kind electro-chemical storage battery known as Regenesys just outside Columbus AFB to serve as a voltage stabilizer and a full 12 MW battery backup under a full power outage. The storage battery would be available twenty-four hours per day, seven days per week under almost instantaneous automatic switching should TVA lose main power from the West Point district substation. The Regenesys Plant could sustain Columbus AFB power for up to 12 hours or more depending on total load at the time of outage

According to electrical consumption and billing records provided, the usage for FY 02 at Columbus AFB is as follows:

Peak kW Demand	10,500	kW
Low kW Demand	5,400	kW
Annual Consumption	39,933,936	kWh
High Month – August 02	4,461,742	kWh
Low Month – March 02	2,704,359	kWh
Avg Daily Consumption	109,572	kWh

Columbus AFB is a mature base. The basic mission has been an undergraduate pilot training base since WWII, and this is expected to remain the primary mission at the base into the foreseeable future.

J1.5 Secondary Metering

J1.5.1 Existing Secondary Meters

Table 5 provides a listing of the existing (at the time of contract award) secondary meters that will be transferred to the Contractor. The Contractor shall provide meter readings once a month for all secondary meters IAW Paragraph C.3 and J1.6 below.

TABLE 5
Existing Secondary Meters
Electrical Distribution System Columbus AFB

Utility System	Facility ID	Facility Name/Description	Utility System	Facility ID	Facility Name/Description
Elect.	144	Petroleum Operations	Elect.	555B	Dormitory/BEQ
Elect.	158	Base Supply	Elect.	603	Water Plant Clear Well
Elect.	160-1	Base Exchange	Elect.	630-1	Avionics Repair
Elect.	160-3	Commissary	Elect.	630-2	Avionics Repair
Elect.	160-2	Credit Union	Elect.	640	MA Admin
Elect.	162	Package Store	Elect.	704	Athletic Center
Elect.	206	Hush House	Elect.	708	Theater
Elect.	216	Engineering Maintenance	Elect.	724	Wing HQS
Elect.	218	Engineering Maintenance	Elect.	736	Bowling Center
Elect.	220	Engine Shop	Elect.	847	Base Operations
Elect.	230	Flight Training	Elect.	926	CBPO
Elect.	232	Anthony's Pizza	Elect.	932	Data Automation
Elect.	236	Student Squadron	Elect.	944	Officers Club
Elect.	246	NDI Lab	Elect.	944	Officers Club AC
Elect.	262	Corrosion Control	Elect.	954	VIP Bldg
Elect.	268A	Flight Simulator	Elect.	955	Q 955
Elect.	268B	Flight Simulator	Elect.	956	Q 956
Elect.	268C	Flight Simulator	Elect.	958	Q 958
Elect.	268D	Flight Simulator	Elect.	964	Q 964
Elect.	268E	Flight Simulator	Elect.	968	Q 968
Elect.	268F	Flight Simulator	Elect.	995	T1A Hangar
Elect.	326	Cold Storage	Elect.	1004	Dental Clinic
Elect.	327	PMEL	Elect.	1046	RAPCON
Elect.	328	Veterinary Clinic	Elect.	1052	RAPCON Support Communications
Elect.	345	Services Annex	Elect.	1100	Hospital
Elect.	385	Civil Engineering	Elect.	1100	Hospital XRAY
Elect.	414-1	BEAD BLST	Elect.	1944	Alert
Elect.	414-2	BEAD BLST	Elect.	1944	Alert # 2
Elect.	440	Hangar	Elect.	2030	Stables
Elect.	510	Community Center	Elect.	2048	GATOR Site
Elect.	530	Post Office	Elect.		CASS 1
Elect.	544	Dormitory	Elect.		CASS 2
Elect.	555A	Dormitory/BEQ	Elect	151	Recycling Center

Utility System	Facility ID	Facility Name/Description	Utility System	Facility ID	Facility Name/Description
Elect.	995	T-1 Hangar	Elect	971	BOQ
			Elect	406	Corrosion Control

J1.5.2 Required New Secondary Meters

The Contractor shall install and calibrate new secondary meters as listed in **Table 6**. New secondary meters shall be installed IAW Paragraph C.13, Transition Plan. After installation, the Contractor shall maintain and read these meters IAW Paragraphs C.3 and J1.6 below.

TABLE 6
New Secondary Meters
Electrical Distribution System Columbus AFB

Meter Location	Meter Description
BLDG 350 CAR WASH	KWH/KW DEMAND
BLDG 566 GOLF MAINT SHED	KWH/KW DEMAND
BLDG 570A GOLF CLUB HOUSE	KWH/KW DEMAND
BLDG 148 OUTDOOR RECREATION	KWH/KW DEMAND
BLDG 335 ARTS AND CRAFTS CENTER	KWH/KW DEMAND

J1.6 Monthly Submittals

The Contractor shall provide the Government monthly submittals for the following:

1. Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to:

Name:	Utility COTR	Utility Contract Administrator
Address:	14 CES/CEOC	14 CONS/LGC
	555 Simler Blvd	555 Seventh St, Bldg 724
	Columbus AFB, MS 39710	Columbus AFB, MS 39710
Phone number:	662-434-7403	

2. Outage Report. The Contractor's monthly outage report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to:

Name:	Utility COTR	Utility Contract Administrator

Address:	14 CES/CEOC	14 CONS/LGC
	555 Simler Blvd	555 Seventh St, Bldg 724
	Columbus AFB, MS 39710	Columbus AFB, MS 39710
Phone number:	662-434-7403	

3. Meter Reading Report. The monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to:

Name:	Utility COTR	Utility Contract Administrator
Address:	14 CES/CEOC	14 CONS/LGC
	555 Simler Blvd	555 Seventh St, Bldg 724
	Columbus AFB, MS 39710	Columbus AFB, MS 39710
Phone number:	662-434-7403	

4. System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to:

Name:	Utility COTR	Utility Contract Administrator
Address:	14 CES/CEOC	14 CONS/LGC
	555 Simler Blvd	555 Seventh St, Bldg 724
	Columbus AFB, MS 39710	Columbus AFB, MS 39710
Phone number:	662-434-7403	

J1.7 Energy Saving Projects

IAW C.3, Requirement, the following projects have been implemented on the distribution system by the Government for energy conservation purposes. - **NONE**

J1.8 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the Columbus AFB boundaries.

J1.9 Off-Installation Sites

No off-installation sites are included in the sale of the Columbus AFB electric distribution system.

J1.10 Specific Transition Requirements

IAW Paragraph C.13, Transition Plan, **Table 7** lists service connections and disconnections required upon transfer.

TABLE 7
Service Connections and Disconnections
Electrical Distribution System Columbus AFB

Location	Description
NONE	

J1.11 Government Recognized System Deficiencies

Table 8 provides a listing of system improvements that the Government has planned. The Government recognizes these improvement projects as representing current deficiencies associated with the Columbus AFB electric distribution system. If the system is sold, the Government will not accomplish these planned improvements. The Contractor shall make a determination as to the actual need to accomplish and the timing of any and all such planned improvements. Capital upgrade projects shall be proposed through the Capital Upgrades and Renewal and Replacement Plan process and will be recovered through Schedule L-3. Renewal and Replacement projects will be recovered through Sub-CLIN AB.

TABLE 8
System Improvement Projects
Electrical Distribution System Columbus AFB

Project Location	Project Description
ON-BASE	**Project EEPZ982010A**: Cut tree limbs and trees in power line right-of-way to prevent them from intercepting power lines and causing power outages and equipment damage. Approximately four miles of power line is affected on base. The main area is on "A" circuit, from pole A77 to A106. All tree limbs, trees, and other power line trimmings must be cleaned up and removed from site to base specifications.
ON-BASE	**Project EEPZ001053:** Replace perimeter lights, cable, poles, transformers, control switch and primary line for SAC Alert Building 1944. Existing lights and direct burial spliced cable are deteriorated and hard to troubleshoot. Wires coming out of junction box are shorting out.
ON-BASE	**Project EEPZ021022:** Replace 434 10 KV lightning arrestors in primary overhead distribution lines. Existing arrestors are old and have exceeded life expectancy. Recurrent firing has weakened arrestors. Recent power fluctuations on base are partly attributable to existing aged.
ON-BASE	**Project EEPZ961050:** Repair Utility Systems, NW Quadrant
ON-BASE	**Project EEPZ981051:** Repair Utility Systems, SW Quadrant

Project Location	Project Description
ON-BASE	**Project EEPZ991051:** Repair Utility Systems, SE Quadrant
ON-BASE	**Project EEPZ971051:** Repair Utility Systems, NE Quadrant